

**Achievement of Market-Friendly Initiatives and Results Program
(AMIR 2.0 Program)**

Funded By U.S. Agency for International Development

**Securities Depository Center
Electronic Clearing & Settlement
(Investor Level)**

Final Report

**Deliverable for Capital Markets Component, Task No. 628.2
Contract No. 278-C-00-02-00210-00**

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Section 1 Executive Summary

1.01 Background

The SDC is a fundamental support institution of the Jordanian capital market. It is responsible, in cooperation with the Amman Stock Exchange (ASE), for implementing a qualitative leap in market efficiency. The SDC seeks to attract local and foreign investment, create a secure environment for capital investment, reduce investment costs, minimize systemic risk and raise the efficiency of the settlement system in the Kingdom.

To meet its obligations in transitioning the Jordan capital markets the SDC has designed a fully integrated electronic system for the implementation of irrevocable Delivery versus Payment (DVP) in five stages:

Stage One: A Registry System for registering securities, introducing the system to market participants and issuing electronic contracts to insure clean and accurate Shareholder Registers.

Stage Two: A Depository System that records each trade's change of securities ownership in Shareholder Register accounts

Stage Three: A Clearing System that prepares the trade contract (property clearing) between broker-dealers.

Stage Four: A Settlement System that supports the settlement of trades on a Delivery versus Payment (DVP) basis. The SDC serves as an independent facilitator of the settlement process and protects the rights of all shareholders. In this stage a network of local banks will be used to complete the cash portion of the settlement process.

Stage Five: In addition to the above-mentioned stages, SDC will provide market support services for all participants in the capital markets, including:

1. Securities dealers.
2. Securities exporters.
3. Monitoring the capital market.

1.02 Scope of Work

As stated in the Scope of Work, the Objective of this consultancy is to:

“...assist the SDC implement a number of tasks related to the launch of electronic clearing and settlement at the Investor Level.”

Work completed in this phase of the project supports the SDC's implementation of tasks related to the launch of electronic Clearing and Settlement at the Investor Level.

1.03 Organization Structure

The SOW's Section C, Tasks Related to Achieving the Consultancy's Objectives, Item (1) requires:

“(1) Preparation of SDC organization structure for SDC operators for the planned SDC launch of electronic clearing and settlement at investor level.”

The structure of the SDC's operations, in its current form, is the result of an *ad hoc* growth process that has taken place over the past several years. The skill sets required to support the SDC launch of electronic clearing and settlement at the investor level are, for the most part, in place.

However, the SDC operations do lack a cohesive, collective and integrated structure in its current composition. The process of creating a logically collective and integrated operations structure was commenced during this phase of the consultancy and is expected to evolve and settle during subsequent phases of the project. Basic depository-wide and operations-specific organizational structures are presented in Section 2 of this report. Re-structuring of the SDC organizational functions will commence during the next phase of the project and will continue to be refined and evolve in subsequent project phases.

1.03 Management Recruitment

Item (2) in Section C of the SOW the second task required in the Tasks Related to Achieving the Consultancy's Objectives is defined as:

“(2) Working with the SDC to review CVs collected by the AMIR and SDC through the newspaper advertisements for the Operations Manager and other positions, including IT Manager, Financial Officer, other key positions and staff persons, for the managing corporate actions. The consultant will assist the interview and hire the appropriate

At the present time the SDC is lacking the most critical component necessary for the implementation of a sound organizational structure – a Chief Operations Officer (COO). Extensive recruitment efforts in domestic, regional and international financial media have failed to produce a suitable candidate. It is therefore recommended that the SDC's Chief Executive Officer appoint a COO utilizing one of the options, below.

- (A) Select internal candidates from current SDC staff to be appointed on a conditional basis for three (3) months. Conditional candidate to serve as Acting Chief Operations Officer with substantial, daily support from the project's Operations Expert. Acting COO to manage restructuring SDC Operations as well as daily depository operations. At the end of the three (3) month interim period a decision to be made by the SDC's CEO as to the appointment of the Acting COO as permanent COO, or replacement of Acting COO with another Acting COO candidate.
- (B) Appointment of Acting COO, on a conditional basis, from an external source. External source could be a Jordanian custodian bank or a top-tier Jordanian university. University candidate would be a graduate student that has been recommended by business school's faculty. Acting COO would receive substantial, daily support from the project's Operations Expert. Acting COO to manage restructuring SDC Operations as well as daily depository operations. At the end of a three (3) month interim period a decision to be made by the SDC's CEO as to the appointment of the Acting COO as permanent COO, or replacement of Acting COO with another Acting COO candidate.

1.04 Settlement Bank Network

Item (3) in Section C of the SOW the second task required in the Tasks Related to Achieving the Consultancy's Objectives is defined as:

“(3) Draft the Request for Proposal for a settlement bank for SDC.”

In order to support the cash side of clearing and settlement in an orderly, safe and effective manner the SDC is required to have the capacity to receive funds from buyers and transfer buyer funds received to the seller. In Jordan, as in the vast majority of international capital markets, the securities depository does not maintain cash accounts. Therefore, it is necessary for the SDC to establish a timely, cost-effective and efficient method of handling cash payments.

The most practical method currently available to the SDC is the creation of a Settlement Bank Network (SBN). The SBN would consist of a number of banks, deemed qualified by the SDC, where SDC participants would maintain an account dedicated to securities settlement. Based on Net Clearance positions calculated by the SDC, the SDC would authorize the movement of settlement funds from Net Buyers to Net Sellers.

Qualification for participation as a member of the SDC's Settlement Bank Network will be accomplished via the conduct of an RFP-like process administered by the SDC with assistance from the AMIR project's consultants. A copy of the RFP document to be issued by the SDC is included in this report as *Appendix A - Settlement Bank Network – Qualifications Packet*.

1.05 Settlement Guarantee Fund (SGF)

Item (4) in Section C of the SOW the second task required in the Tasks Related to Achieving the Consultancy's Objectives is defined as:

“(4) Draft the structure and procedures for the SDC Settlement Guarantee Fund.”

The Settlement Guarantee Fund (SGF) will be the primary Risk Management tool available in the Jordan capital markets. The SGF will be structured and administered by the SDC to insure that there is no disruption in the settlement process and DVP Settlement can be realistically sustained. The existence of the SGF will provide a readily available safety net which will be the cash source to cover sell side securities sale fails and buy side cash fails.

Structural options and management procedures are detailed in the body of this report. The structural composition of the SGF and its participant contribution scheme are dependent upon whether or not the tightly coupling of the Amman Stock Exchange's (ASE's) Trading System and the SDC's Clearing and Settlement System is in place or is not in place.

Tightly coupling will support the pre-validation Sell Orders by the SDC system, prior to the Sell Orders being displayed on the ASE. Pre-validation will drastically reduce if not eliminate Sale Fails. Sale Fails occur when a Sell Order is executed on the ASE but the securities are subsequently not available for settlement when the locked-in trade reaches the SDC for settlement. The pre-validation process will therefore reduce the number of Sale Fails, which in turn will reduce the funding required for the SGF.

A pre-validation SGF model, supported by the tightly coupling of the ASE and SDC systems, is contained in the body of this report. This report also contains an alternative SGF model for use in the absence of the tightly coupling of the ASE and SDC systems.

It is important to note that the operation of an SDC-administered SGF is required to support the continuity of securities settlement in the marketplace, to prevent disruption to the orderly conduct of business in the capital markets and to afford reasonable protection to investors who have purchased and sold securities in good faith.

It is also important to note that the SGF will operate with or without the tightly coupling of the ASE and SDC systems. The critical Risk Management component required insuring settlement continuity is the SGF and is not the availability of tightly coupling. The successful implementation of DVP depends on the operation of the SGF and not on the availability of tightly coupling.

1.06 Functional Audit & Operational Approval

Item (5) in Section C of the SOW the second task required in the Tasks Related to Achieving the Consultancy's Objectives is defined as:

"(5) Prepare functional audit for operational approval prior to SDC launch of electronic clearing & settlement at the Investor Level.."

Recommendations

It is recommended that the preparation of the functional audit and operational sign-off be deferred until shortly before the SDC launch is scheduled. At present implementation of the Settlement Bank Network, the SGF final structure and the official appointment of a COO, a CFO and a Chief Information Officer for IT operations is not complete.

Practicality dictates that the functional audit and operational sign-off be conducted a point in the SDC's development when the mission-critical operational elements are in place and appropriate SDC management staff is also in place to manage the process and accept administrative ownership of the sign-off procedural environment.

1.07 Deliverables

Deliverables required in Section C of the SOW the are defined as:

*"• Deliverables:
- Report presenting revised SDC organizational structure, progress on staffing, Request for Proposal for settlement bank and procedures for management of the Settlement Guarantee Fund. The report will also include the functional audit."*

This report contains the required deliverables with the exception of the functional audit. It is recommended that the functional audit be deferred until shortly before the launch of SDC Clearance & Settlement at the Investor Level. Rationale for the deferment are cited in *Section 1.07 Functional Audit & Operational Sign-Off*, above.

Section 2.0 Organizational Structure

2.01 International Best Practice

The organizational structure and operational management of a Central Securities Depository (CSD) is mission-critical to the orderly conduct of business in the capital markets. International setting bodies such as the International Organization of Securities Commissions (IOSCO), the Bank for International Settlements (BIS) and the Central Banks of the Group of 10 all consider the governance and management of CSDs important enough to establish best practice standards and to incorporate those best practices in an official report establishing de facto recommendations for the Clearance & Settlement of Securities.

International best practices cited in this report are taken from:

Recommendations for Securities Settlement Systems, Committee on Payment and Settlement Systems, Technical Committee of the International Organization of Securities Commissions, Basel, Switzerland, Bank for International Settlements, November 2001

2.02 Organizational Governance

The international best practice related to management and governance of a CSD is contained in:



Recommendation 13: Governance

- 3.54 Governance arrangements encompass the relationships between management and owners and other interested parties, including users and authorities representing the public interest. The key components of governance include the ownership structure; the composition of the board; the reporting lines between management and board; and the processes that make management accountable for its performance, e.g. an audit committee or similar arrangement.



Recommendation 13: Governance

- 3.55 No single set of governance arrangements is appropriate for all institutions within the various securities markets and regulatory schemes. However, an effectively governed institution should meet certain basic requirements. Governance arrangements should be clearly specified, coherent, comprehensible and fully transparent. Objectives, those principally responsible for achieving them and the extent to which they have been met should be disclosed to owners, users and public authorities. Management should have the incentives and skills needed to achieve those objectives and should be fully accountable for its performance. Reporting lines between management and board should be clear and direct, and the board should contain suitable expertise and take account of all relevant interests. These basic requirements should be met regardless of the corporate structure of the institution, that is, whether it is a mutual or for-profit entity.

In the current environment the primary recommendation for the SDC related to governance is the creation of clearly a specified, coherent, comprehensible and fully transparent management with easily discernable roles and responsibilities. Once established the SDC's management structure should be communicated to SDC participants, market participants and to the investing public.

As stated in Recommendation 13 the roles and responsibilities of depository management should be clearly defined and eminently understandable to all depository personnel and participants. The absence of clearly established management roles and responsibilities leads to operational inefficiency and confusion. A failure to install a clearly defined and logical operational structure will place depository participants and their investor clients at risk, increase the number of transactions failing to settle and will in a short period of time erode the credibility of a country's capital market.

Recommendation 13 also states that "Objectives, those principally responsible for achieving them and the extent to which they have been met should be disclosed to owners, users and public authorities. Management should have the incentives and skills needed to achieve those objectives and should be fully accountable for its performance." Adherence to this recommendation requires that management should be qualified and have appropriate incentives to achieve the corporate objectives of the CSD.

2.03 Operational Reliability

The international best practices related to the CSD's Operational Reliability – Systems & Processes are contained in:



Recommendation 11: Operational Reliability Systems & Processes

3.54 Operational risk can arise from inadequate control of systems and processes; from inadequate management more generally (lack of expertise, poor supervision or training, from inadequate identification or understanding of risks and the controls and procedures needed to limit and manage them; and from inadequate attention being paid to ensuring that procedures are understood and complied with

In order to avoid placing the markets at risk, international best practice recommends that CSDs take all necessary steps to insure that procedures are in place to manage processing risks and that all of these procedures are clear, concise and well understood by CSD personnel and CSD participants.

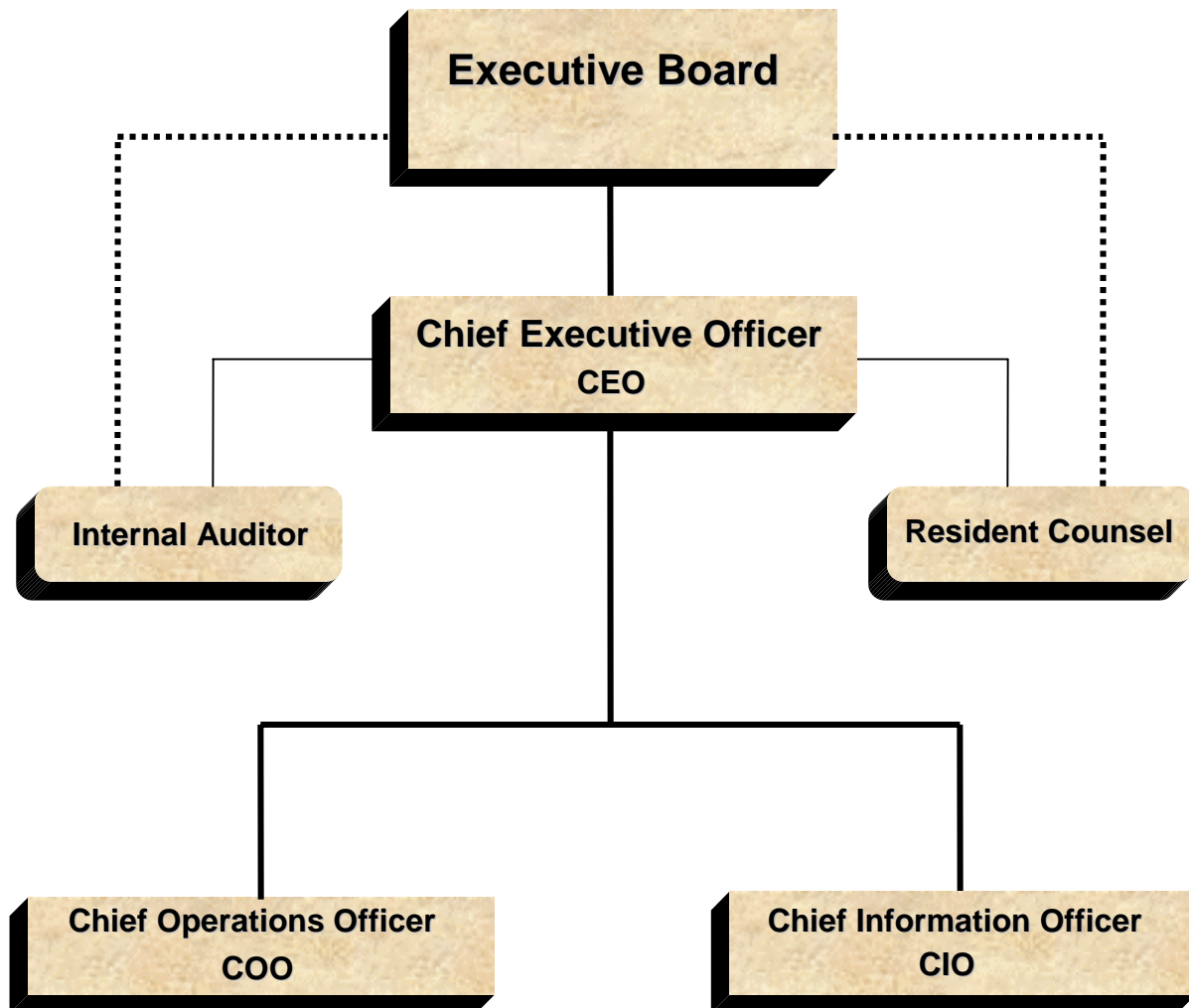
In order to minimize problems related to Operational Reliability and to be compliant with generally accepted international standards, it is recommended that the SDC adopt the generic Operational Structure illustrated in the graphics, below. The models illustrated are intended to establish a sound foundation for the SDC's structure and should be adapted for use in the Jordan marketplace by SDC management.

It should be mentioned at this point that a prerequisite for the implementation and customization of the operational structure recommended for the SDC is the appointment of a:

- Chief Operations Officer
- Chief Information Officer
- Chief Financial Officer

It is critical for the successful implementation of the SDC's operational structure that all key management staff be in place to participate in the design and implementation of the structure and to accept ownership of the structure implemented. The appointment of required management personnel is addressed in a separate section of this report.

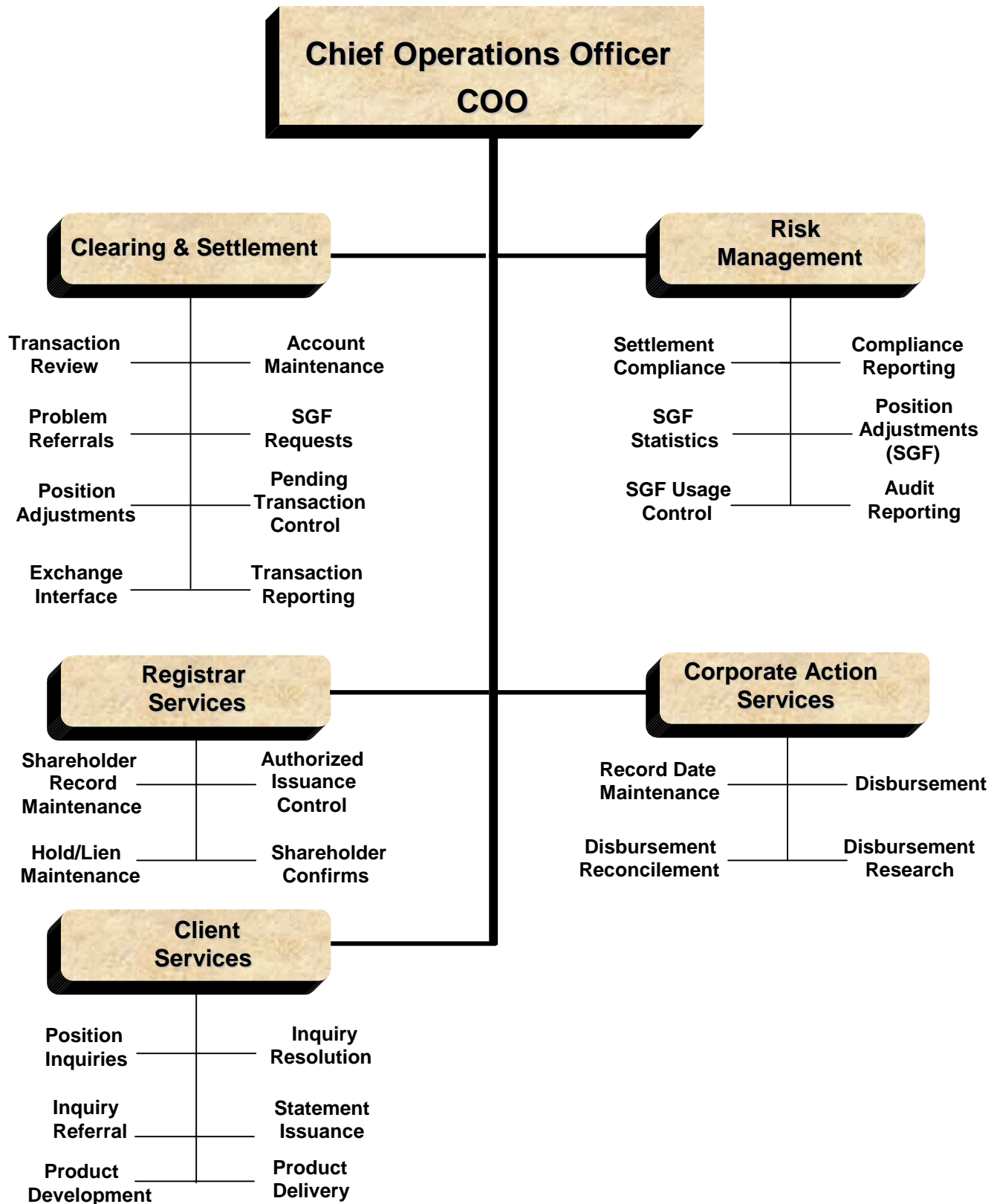
Operations Structure - Management Level



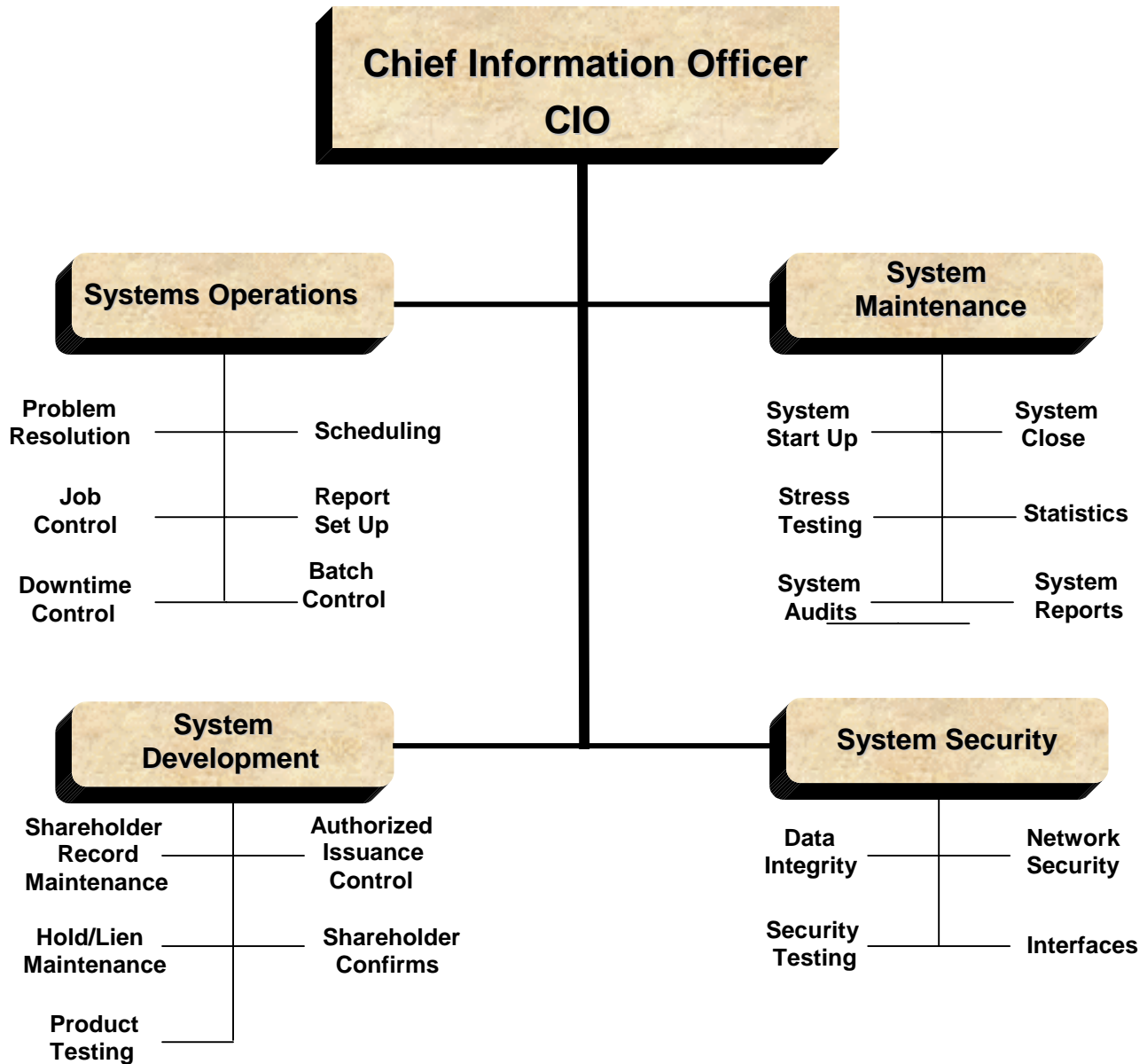
Operations Structure - Financial Level



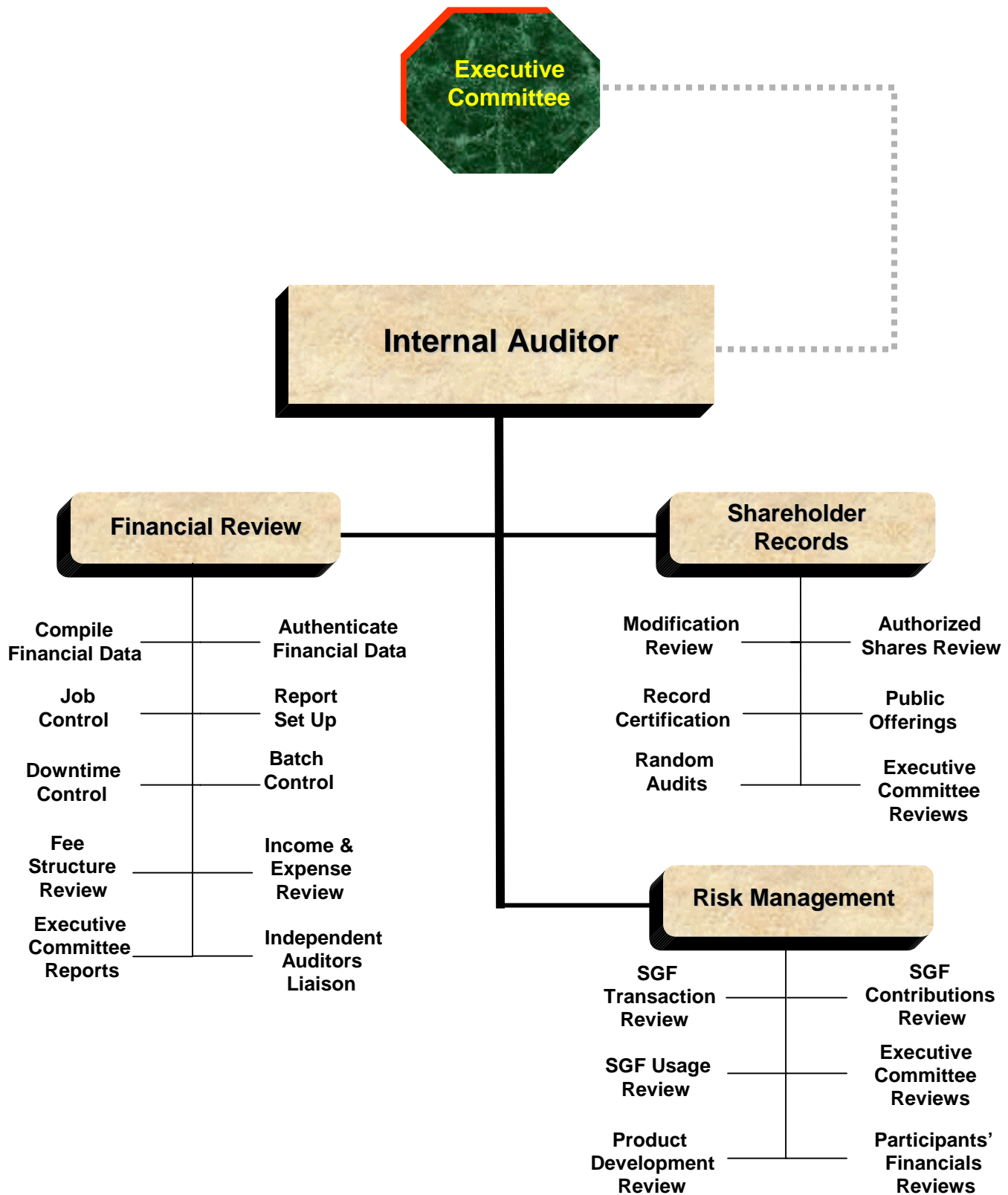
Management Structure - Operations Level



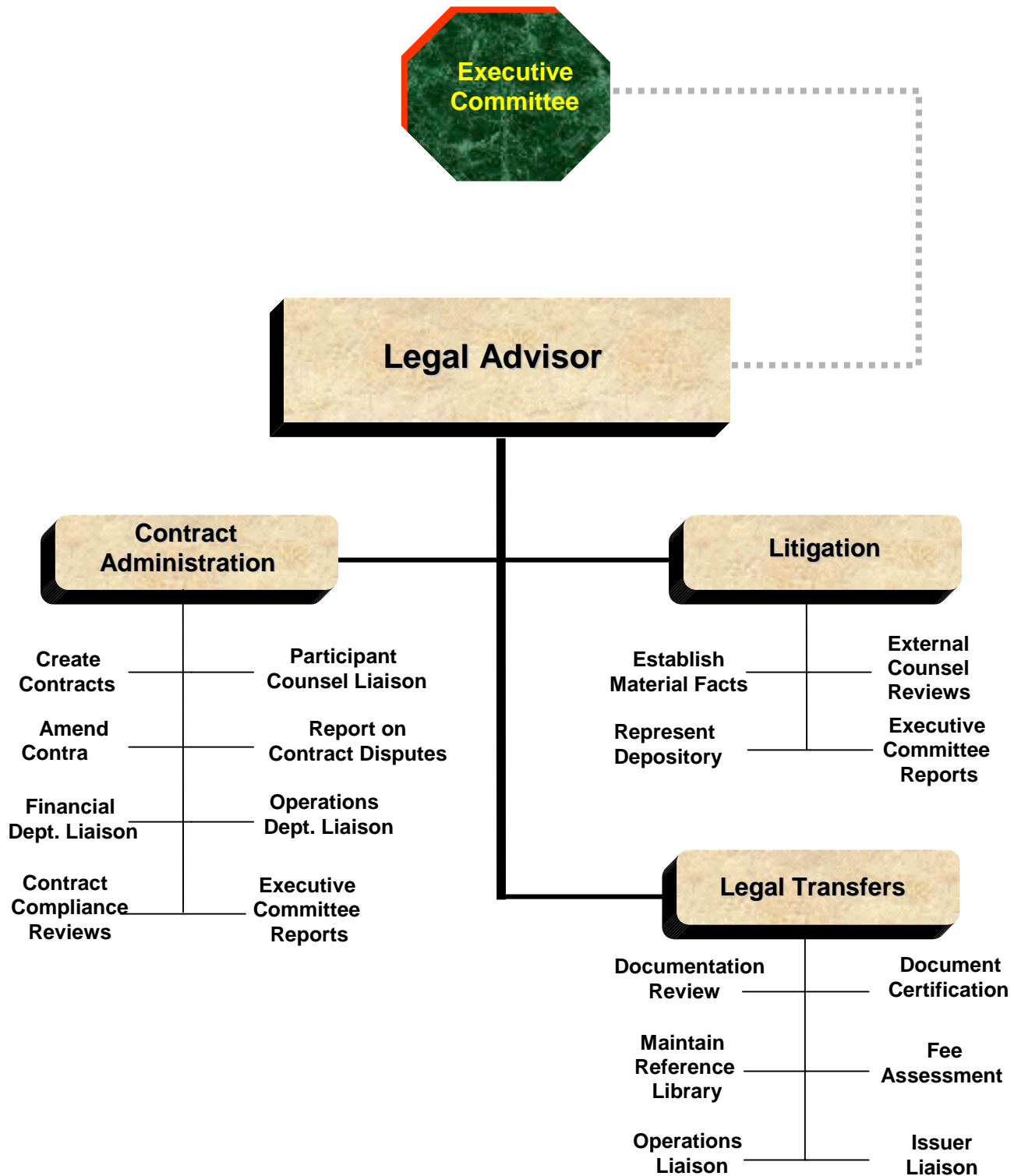
Management Structure - Technology Level



Management Structure - Audit Level



Management Structure - Audit Level



2.04 Staff Recruitment

It has been historically true that operational structures inherited by or thrust upon a depository's key management staff have not been successful.

The SDC has attempted to engage the services of an experienced COO via the placement of recruitment advertisements in domestic, regional and international newspapers and financial magazines. In this phase of the project all of the responses to the SDC's solicitations were reviewed. The review produced only one (1) candidate that appeared suitable. However, the candidate's qualifications were diminished by the fact that the candidate did not speak Arabic, did not have any experience working in an Arabic market and was not familiar with an Arabic business and social culture.

The daily pressures inherent in depository operations and the necessity to create and support a collegial work environment within an Arabic business and social environment require that the SDC's COO have some exposure to an Arabic securities market and have demonstrable experience in creating a strong team-processing and shared responsibility environment.

It is quite normal for a securities depository's operations structure to evolve and mature over a period of time. It is important, however, for the orderly conduct of depository business that basic skill sets, clearly defined inter-departmental roles/responsibilities and logical inter-departmental work flows be in place as soon as possible.

A primary prerequisite for the implementation of an elemental organization structure is the presence of a designated and clearly empowered Chief Operations Officer to manage the day-to-day operations of the depository while evolving a nascent organizational structure into a mature operations model.

Recommendations

It is recommended that the SDC immediately appoint:

- a Chief Operations Officer (COO)
- a Chief Financial Officer (CFO), and
- a Chief Information Officer (CIO)

In the interest of prudent expediency it is also recommended that the SDC appoint an Interim COO using either an Inter Appointment Model or an External Appointment Model.

Internal Appointment Model

The Chief Executive Officer of the SDC will identify an appropriate candidate from the SDC's current staff. The identified candidate will be appointed Interim COO for a period of three (3) months. During the interim period the candidate would be supported by the services of a contracted professional.

At the end of the interim three-month period the candidate would be deemed to be a suitable COO and would receive a full time appointment. In the instance where the candidate is not deemed to be a suitable full time COO, then the Interim appointment will be ended and the candidate may return to their previously held staff position. On termination of the interim period the SDC would have to look for another suitable candidate.

External Appointment Model

The External Model is similar to the Internal Model. The primary difference is the identification of a suitable candidate based on references provided by the graduate business faculty of a local university. As in the Internal Model, the identified candidate would receive an appointment as the Interim COO for a period of three (3) months, supported by a professional services provider. At the end of the interim three-month period the candidate would be deemed to be a suitable COO and would receive a full time appointment. In the instance where the candidate is not deemed to be a suitable full time COO, then the Interim appointment will be ended and the candidate's employment by the SDC may cease or the candidate may, at the discretion of the SDC's CEO, be offered a suitable staff position.

Given the luxury of time it would not be necessary to utilize alternatives such as the Internal or External Models. However, under the current circumstances it is critical for the further development of the SDC that a COO be appointed as soon as possible.

Section 3.0 Settlement Bank Network (SBN)

3.01 Operational Rationale

The settlement of executed trades consists of two distinct component parts: (a) Securities Settlement and (b) Cash Settlement. In order to complete the Cash Settlement component securities ownership must be transferred from the trade sell side (old owner) to the trade's buy side (new owner).

The SDC, like most Central Securities Depositories, does not maintain cash positions for its participants. Therefore, movements of funds to settle securities transactions are made through one or more commercial banks, commonly referred to as Settlement Banks.



Recommendation 10: Cash Settlement Assets

Assets used to settle the ultimate payment obligations arising from securities transactions should carry little or no credit or liquidity risk. If central bank money is not used, steps must be taken to protect CSD members from potential losses and liquidity pressures arising from the failure of the cash settlement agent whose assets are used for that purpose.

It is the SDC's intention to facilitate Cash Settlement via the transfer of funds between a number of qualified Settlement Banks to be designated the SDC Settlement Bank Network or SBN. In establishing the SBN the SDC will qualify a number of commercial banks and SDC participants will be provided the option of establishing Settlement Accounts in one of the qualified banking institutions.

In order to insure that banking enterprises were qualified to be a member of the SBN, the SDC drafted a SBN Requirements document on June 10, 2002. Subsequent to review the document was amended, translated into Arabic and delivered to potentially SBN institutions on July 31, 2002.

Institutions receiving the SBN Requirements document have been asked to respond to the qualification questions included in the document and return the document to the SDC. The SDC also plans to conduct a SBN Information Meeting in early August 2002 to assist potential SBN members in the qualification process.

A copy of the SBN Qualification Requirements document is attached to this report as *Appendix a – SBN Qualifications Requirements*.

Section 4.0 Settlement Guarantee Fund (SGF)

4.01 International Best Practice

The amount required to set up and sustain the Settlement Guarantee Fund (SGF) was designed to provide a level of Risk Management to participants in the Jordanian securities markets that is reasonably compliant with generally accepted international standards. Funding requirements for the SGF are based on recommendations for securities markets established the Bank for International Settlements, the International Organization for Securities Commissions (IOSCO) and the Central Banks of the Group of 10.



Recommendation 9: CSD Risk Management

CSDs that extend intraday credit to participants, including CSDs that operate net settlement systems, should institute risk controls that, at a minimum, ensure timely settlement in the event that the participant with the largest payment obligation is unable to settle. The most reliable set of controls is a combination of collateral requirements and limits

The amount required was initially calculated in June of 2002 as JD 5.8 million. As of mid-July 2002 the amount required for the SGF remains at JD 5.8 million. The amount of JD 5.9 8 million to establish and sustain the SGF is based on:

1. Recommendations established in *The Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten Countries*, issued by the Bank for International Settlement of Basle, Switzerland in November 1990. This report is commonly referred to as the Lamfalussy Report after Mr. M. A. Lamfalussy who was at the time the Chairman of the Committee on Interbank Netting Schemes and a senior manager of the Bank for International Settlements. The basic Risk Management principal recommended in this report has come to be known as the Lamfalussy Rule (see details, below).
2. International standards as contained in the report titled *Delivery versus Payment in Securities Settlement Systems*, issued by the Committee on Payment and Settlement Systems of the Central Banks of the Group of Ten Countries, published by the Bank for International Settlements of Basle, Switzerland in September of 1992. The report expands the Lamfalussy Rule and adapts the Rule for application in Securities Settlement Systems.

3. International standards as contained in the report titled *Recommendations for Securities Settlement Systems*, issued by Technical Committee of the International Organization of Securities Commissions and the Committee on Payment and Settlement Systems of the Central Banks of the Group of Ten Countries, published by the Bank for International Settlements of Basle, Switzerland in November of 2001.

4.02 The Lamfalussy Rule

The Lamfalussy Rule, as originally established, stated that as a minimum requirement Netting Schemes should be supported by liquid assets in an amount equal to the gross obligations of the scheme's largest participant. The basic principal was to minimize disruption in the marketplace by insuring the continuity of transaction settlement even in the event that the market's largest participant was not able to meet any of its obligations.

The original rule was applied to Netting Schemes used to settle obligations between Central Banks. Due to the significant growth in securities markets in the late 1980s and early 1990s and the resultant exposure of securities markets to aggregate settlement risk, the Rule was modified for application to electronic systems supporting the settlement of securities transactions. A primary modification was the expansion of the Rule's coverage beyond the Trade Date Settlement Cycle operating in the Interbank Market to the five day Settlement Cycle operating, at the time, in most securities markets. Additional modifications to the Rule were made to account for differences in market Settlement Cycles and differences between securities markets with operational Securities Lending & Borrowing Programs and those securities markets where such programs were not available. Since its inception in 1990 multiple versions of the Rule have been created to meet specific market conditions.

4.03 SGF Models

The model recommended for use in the Jordanian marketplace by the SDC requires the SGF to be supported by an amount equal to the average daily obligations of the three (3) largest participants in the market for one (1) Settlement Cycle plus one (1) day. The additional one (1) day is included to compensate for the absence of an operational Securities Borrowing & Lending Program in Jordan and to counterbalance any delays in acquiring shares required to cover a Sell Side fail.

International standards established in 1989 by the Central Banks of the Group of Ten Countries (G10) recommended that each market establish a Central Securities Depository (CSD) and the CSD should have an operational Securities Borrowing and Lending Program. The operation of such a program constitutes an important component of a securities market's Risk Management and where not available must be compensated for in a SGF.

A Settlement Cycle of T+3 was used in the SGF calculations on the basis that the SDC Settlement Cycle will be T+3 on the implementation of full DVP Settlement.

The use of the three (3) most active participants is based on benchmark models used in Emerging Markets and Transition Markets in Central Europe, Eastern Europe and Southern Asia since 1990.

The selection of a working SGF model for the SDC is based on statistical analysis performed using average daily obligations based on participant daily activity over a seven (7) month period.

Calculations for the SGF models outlined below are attached to this report as *Appendix B – Settlement Guarantee Fund (SGF) SGF Model Structures*.

SGF MODELS

MAXIMUM MODEL Total obligations of 3 most active participants for 1 complete Settlement Cycle of T+5.	JD 7.236 million
MEDIUM MODEL Total obligations of 3 most active participants for 1 complete Settlement Cycle of T+4 plus 1 day to compensate for the absence of an operational Securities Borrowing & Lending Program..	JD 5.788 million
LOW MODEL Total obligations of the single most active participant for 1 complete Settlement Cycle of T+5.	JD 2.986 million
HIGH RISK PARTICIPANT MODEL Total obligations of 18 participants each of whose individual market activity levels are below 4%. Aggregate obligations for a Settlement Cycle of T+3 plus 1 day to compensate for the absence of an operational Securities Borrowing & Lending Program. The 18 participants represent the market's highest defalcation risk group.	JD 7.541 million

In the model construction where Tightly Coupling is operational, Securities Sale Fails are eliminated. Additionally, since the fungibility and availability of cash to cover buy side fails is significantly higher than the fungibility and availability of security shares to cover sell side fails coverage is required on a Trade Date basis only. In a Tightly Coupled environment funding requirements for the SGF decline significantly, usually on an order of magnitude of ten. In constructing the statistical models for the SDC, utilising the same statistical base used to construct the non-Tightly Coupled models, SGF funding requirements were determined to be JD 651,208.69.

Recommendations

At present the securities markets in Jordan are operating without any meaningful Risk Management controls. The absence of such controls places the market, professional market participants and investors at risk.

It is strongly recommended that:

- A Settlement Guarantee Fund be established under the administrative control of the SDC.
- The SGF be funded at a level that is capable of affording reasonable assurance for the continuity of Securities Settlement.
- In a non-tightly coupled environment a SGF funding level of JD 5.8 million be required.
- In a tightly coupled environment an SGF funding level of JD 650,000 be required.
- Under no circumstances should the securities markets in Jordan be allowed to operate without a SGF.

4.04 Tightly Coupling Impact

In the model construction where Tightly Coupling is operational, Securities Sale Fails are eliminated. Additionally, since the fungibility and availability of cash to cover buy side fails is significantly higher than the fungibility and availability of security shares to cover sell side fails.

In a Tightly Coupled environment funding requirements for a SGF decline significantly, usually on an order of magnitude of ten. In constructing the statistical models for the SDC, utilising the same statistical base used to construct the non-Tightly Coupled models, SGF funding requirements were determined to be JD 651,208.69.

The SDC in Jordan can benefit from a tightly-coupled environment. The Jordanian market can be classified as a transition market that has recently acquired modern technology to support securities trading. As such the market is not burdened by older legacy systems that can not benefit from tightly coupling.

The Chart of Accounts supported by the SDC's systems maintain securities positions down to the level of Beneficial Owner. The maintenance of electronic, book-entry positions at the level of Beneficial Owner make it possible and practical for the SDC to pre-validate Sell Orders. In pre-validating Sell Orders prior to the order's display on the exchange the SDC may check the seller's position and insure that the order's share amount is actually held by the seller and is unencumbered, i.e. does not have lien or pledges in force.

In mature securities markets in Western Europe, the Americas and parts of Asia, CSDs do not maintain participant security positions down to the level of the Beneficial Owner. As an example, securities positions maintained at the Depository Trust Company and Clearing Corporation (DTCC) in the U.S are maintained on an aggregate or omnibus level. Holdings in an omnibus account are represented by one large share position.

A broker's proprietary holdings for a specific issue are held in a single position. A broker's client holdings for a specific security issue are maintained in a single, segregated omnibus position with one aggregate position. In such a situation it is not possible to obtain any benefit from tightly coupling. A Beneficial Owner's share amount in a Sell Order can not be identified and since it can not be identified it can not be validated or pre-validated prior to being displayed on an exchange's trading system. In simplest terms, a CSD with an omnibus Chart of Account structure can not obtain any benefit from a tightly coupled environment.



مركز إيداع الأوراق المالية
Securities Depository Center

Settlement Bank Network

Qualifications Requirements

June 20, 2002

1.00 General Information

This section provides general information regarding the Securities Depository Center (SDC) and Settlement Bank Qualifications document. Information presented includes criteria institutions should adhere to in preparing responses. Section 1.00 includes the SDC's generic legal and contractual requirements and presents eligibility criteria necessary to the qualification of prospective institutions. Respondents to the Settlement Bank Qualifications document are required to fully reply to all questions in all sections in order to be eligible for consideration. Any costs associated with the preparation and submission of a Settlement Bank Qualifications document will be the responsibility of the submitting institution.

1.01 The Securities Depository Center (SDC)

Background

The Securities Depository Center (SDC) was established, under law¹, as the only entity in the Kingdom to perform "...registration and transfer of ownership of securities traded on the Bourse and for price settlement of such among financial brokers." The SDC commenced operations in May of 1999 as a non-profit institution under the regulatory control of the Jordan Securities Commission (JSC).

The SDC is a separate judicial entity with administrative and financial independence that may carry out all legal acts, including concluding legal contracts, acquiring and disposing of movable and immovable property and appointing a lawyer to act on its behalf in legal proceedings.

The SDC is a fundamental support institution of the Jordanian capital market. It is responsible, in cooperation with the Amman Bourse, for implementing a qualitative leap in market efficiency. The SDC seeks to create a secure environment for capital investment, reduce investment costs, minimize systemic risk and raise the efficiency of the settlement system in the Kingdom.

To meet its obligations in transitioning the Jordan capital markets the SDC has designed a fully integrated electronic system for the implementation of irrevocable Delivery versus Payment (DVP) in five stages:

Stage One: A Registry System for registering securities, introducing the system to market participants and issuing electronic contracts to insure clean and accurate Shareholder Registers.

Stage Two: A Depository System that records each trade's change of securities ownership in Shareholder Register accounts

¹The Securities Law, Law No. (23) for the year 1997, Chapter 4, Article (29)

Stage Three: A Clearing System that prepares the trade contract (property clearing) between broker-dealers.

Stage Four: A Settlement System that supports the settlement of trades on a Delivery versus Payment (DVP) basis. The SDC serves as an independent facilitator of the settlement process and protects the rights of all shareholders. In this stage a network of local banks will be used to complete the cash portion of the settlement process.

Stage Five: In addition to the above-mentioned stages, SDC will provide market support services for all participants in the capital markets, including :

1. Issuers;
2. Brokers;
3. Custodians;
4. Investors.

1.02 The SDC Settlement Bank Network (SBN)

Purpose

The settlement of securities transactions consists of two distinct component parts: (a) Securities Settlement and (b) Cash Settlement. In order to complete the Cash Settlement component securities ownership must be transferred from the trade's sell side (old owner) to the trade's buy side (new owner).

The SDC, like most Central Securities Depositories, does not maintain cash positions for its participants. Therefore, movements of cash funds to settle securities transactions are made through one or more commercial banks, commonly referred to as Settlement Banks.

It is the SDC's intention to facilitate Cash Settlement via the transfer of funds between a number of qualified Settlement Banks to be designated the SDC Settlement Bank Network or SBN. In establishing the SBN the SDC will qualify a number of commercial banks and SDC participants will be provided the option of establishing Settlement Accounts at one of the qualified banking institutions.

The primary purpose of this Settlement Bank Qualifications document is to qualify a number of banking institutions for participation in the SBN.

1.03 Qualification Packet Structure

Package Structure

The Settlement Bank Qualifications document is divided into 3 sections:

Section I: General Information

This section contains background information on the SDC, the general purpose of the Settlement Bank Network and general business information related to Settlement Bank Qualifications.

Section I also contains instructions for the submission of responses along with requests for institutional financial qualifications and business history. Additionally, this section contains information regarding the SDC's general legal and contractual criteria.

Section II: Business Requirements

Section II contains background information on the Cash Settlement process and the requirements necessary to support the efficient, secure and cost-effective movement of funds required of a Settlement Bank. This section also contains the SDC's criteria for institutional operational qualification.

Section III: Operational Requirements

Section III contains information requests related to an institution's technical qualifications and processing capabilities. Institutions submitting responses to the Settlement Bank Qualifications document are requested to provide concise and comprehensive answers to all of the questions contained in this section. In order to conduct the valuation process in a fair and equitable manner it is important that all questions are answered and that no question be left blank.

1.04 Added Services

Responding institutions are encouraged to provide a development schedule for any SDC qualification requirement(s) that cannot be accommodated by the institution's business and/or processing capabilities. In such cases it is required that a clear distinction be made by between current, commercially available capabilities, and those provided as a result of a specific development commitment. For any future development to receive full consideration, the responding institution must provide a detailed description of the proposed development. At a minimum, the detailed description is required to include the following:

- A functional description of the product or service to be provided
- Additional hardware and software requirements
- An identification of dependencies or interactions with other systems, technologies or standards

- The current status of development efforts
- The estimated development interval and proposed development schedule
- An identification of the service provider(s) and any third party resources required to complete development, with the responsibilities of each party clearly defined.

In responding to this section institutions are required to indicate their ability to adhere to this schedule.

Note: This schedule is subject to change by the SDC at any time during the Qualification Packet response or selection process

1.05 Assumptions & Guidelines

- Representations

Institutions, by submitting a response to the Settlement Bank Qualifications document, represent that:

- The institution has read and has understood the Settlement Bank Qualifications document.
- The response submitted by the vendor is in accordance with the requirements set forth in the Settlement Bank Qualifications document to the best of the institution's ability.
- The institution's response is based on current, commercially available, business services, technologies and systems, unless specifically indicated otherwise.
- Business services included in an institution's Settlement Bank Qualifications document are currently operational and the SDC, or SDC authorized representative(s), may at its discretion and selection perform a review of such business services as part of the evaluation process.
- The institution guarantees continued maintenance and support for the business services included in the Settlement Bank Qualifications document for a minimum of five (5) years and further represents that the institution possess the business capabilities, hardware, software and personnel necessary to provide efficient and successful support for all business services included in the Qualification Packet.

- Solicited Information

Responses to the Settlement Bank Qualifications document submitted by institutions are required to include all information solicited in the document, plus any additional data, printouts, and literature institutions deem pertinent to the understanding and evaluation of the response, as submitted.

- Confidentiality

By submitting a response to the Settlement Bank Qualifications document institutions agree that all information contained in the document is the confidential and the proprietary property of the SDC. Institutions responding also agree that information contained in the Settlement Bank Qualifications document and responses incorporated in the Settlement Bank Qualifications document may not be disclosed without the written consent of authorized SDC personnel. An institution receiving a Settlement Bank Qualifications document from the SDC is authorized to reproduce and/or distribute the Packet to the institution's employees only to the extent required to develop responses. Institutions are required to return the original, and all copies of the Settlement Bank Qualifications document with their submitted response.

Institutions receiving a Settlement Bank Qualifications document and choosing not to submit a response are requested to return the original, and all copies of the Settlement Bank Qualifications document to the SDC.

- Questions & Clarification

All questions regarding clarification or interpretation of information contained in the Settlement Bank Qualifications document should be submitted by e-mail to: ceo@sd.com.jo. In order not to interfere with the daily operations of the SDC, telephone inquiries will not be accommodated. Questions should be accompanied by a contact telephone number and a fax number in the event that return clarification of the question is necessary. The question and SDC's answer will, in turn, be distributed to each institution participating in the qualification process in order to ensure fair and equitable treatment of all participants. SDC's written response, via e-mail, will be returned, where possible, within three business days of receipt of the question.

- Institution Information Session

In order to explain the business mechanics of the SBN, answer questions related to the Settlement Bank Qualifications document and to respond to any inquiries related to responses required, an SBN Information Session will be held at the SDC. Details related to the SBN Participants' Meeting will be communicated to participants in the qualification and selection process.

- Evaluation

Responses to the Settlement Bank Qualifications document will be evaluated according to an institution's ability to satisfy the requirements stated in each section of the document, and an institution's flexibility in meeting the SDC's business needs.

- Format

To facilitate the comparison and evaluation of responses to the Settlement Bank Qualifications document, institutions responding agree to conform to the following submission guidelines:

- Response to be delivered in the form of two (2) identical response copies. One (1) response copy in paper format and one (1) response copy in electronic format (i.e. diskette or CD)
- Response to be structured in a point-by-point, question and answer format with each response preceded by a question as stated in the Settlement Bank Qualifications document.
- Each Settlement Bank Qualifications document requirement to be responded to, even if the response states that the institution cannot or will not meet a specific requirement.

Note: Due to the evaluation matrix that will be utilized in the selection process, it is extremely important that each requirement be responded to.

- All questions are to be addressed completely and concisely, in the text of the response. Reference to technical specifications which are included as appendices are to be used prudently and only when a detailed response in the body of the response is impractical. General and/or ambiguous statements such as "all reasonable efforts" will be discounted.
- Any, or all, portions of an institution's responses may be incorporated in a final goods and services contract.
- Responses are to be received by the SDC no later than the close of business on

- Responses to the Qualification Packet are to be delivered to, by hand to the attention of:

Mr. Samir Jaradat
The Securities Depository Center
Capital Market Building
Al – Mansour Bin Abi Amer Street
Al-Abdali Area
Al- Madina Al-Riadiya District
Behind the Regency Hotel
Near the Ministry of Interior
Amman

- Any response not confirming to these guidelines may, at the discretion of SDC management, be eliminated from consideration.
- The SDC may, at its option, elect to prepare and distribute a new Settlement Bank Qualifications document, or take any action deemed to be in the best interest of procuring a solution that best satisfies its needs.

- Selection of Qualified Institutions

The SDC reserves the right to reject any or all responses to the Settlement Bank Qualifications document received and, in particular, reject any responses received that does not include information specifically requested, or any responses received that are in any way incomplete or irregular. Submission of a response to the Settlement Bank Qualifications document does not, in any way, constitute an obligation on behalf of the SDC to award a contract to any institution.

SDC also reserves the right to accept any response to the Settlement Bank Qualifications document submitted, whether or not there are contract negotiations with other institutions already in progress.

- Alternate Qualifying Institutions

SDC will have the right to designate a number of qualified but not selected institutions as alternate service providers. In instances where negotiations with one or more qualified and selected institutions fails to result in the execution of a Service Agreement, the SDC may replace one or more qualified and selected institutions with one or more qualified but not selected institutions designated as alternate service providers.

- Notification

Notification of qualification and selection as an SBN member will be made privately via letter. The SDC will have no obligation to disclose to any institution the results of the evaluation, qualification and selection process or the reason why particular institutions were, or were not, deemed qualified and selected. As a condition of participation, institutions are prohibited from issuing press releases or public statements of any kind with reference to the SDC without prior approval, in writing, from authorized SDC personnel.

1.07 Institution Profile

Responses to the following questions are required to qualify an institution for consideration.

- (a) Provide the most recent Financial Statement or financial compliance report(s) submitted to the Central Bank for regulatory purposes.
- (b) Provide Demand Deposit Account (DDA) information¹, including:
 - Number of active DDA domestic business customers
 - Number of active DDA international business customers
 - Number of international currency DDAs
 - Average DDA balance, per account
 - Daily deposit transaction activity per DDA
 - Daily withdrawal transaction activity per DDA
- (c) Number¹ of domestic Money Transfers processed per day
- (d) Number¹ of international Money Transfers processed per day
- (e) Licensing information including license number, license date authorized lines of business/services permitted under license
- (f) Predecessor institutions if current institutional structure is less than 3 years old

¹Ranges may be used to provide reasonable activity statistics.

1.08 Bank's Securities Trading

In order to mitigate problems that could arise from conflict of interests processing and breaches of confidentiality, it is required that institutions responding answer the questions, below:

- (a) Does your institution engage in securities trading?
- (b) If the answer to (a) is Yes, then is your institution's securities trading for:
 - (1) Exclusively for the institution's own account?
 - (2) Exclusively for the institution's customers' accounts?
 - (3) For both the institution's own account and for the institution's customers' accounts?
- (c) If the answer to (a) is Yes, then is how does your institution conduct its securities trading business:
 - (1) Internally through a business department within the institution?
 - (2) Externally through a wholly owned or majority owned subsidiary?
 - (3) Externally through a licensed market intermediary?

1.09 Legal and Contractual Issues

In the instances where an institution is qualified and selected as a member of the SBN, the SDC, at its discretion, shall have the right to require such an institution to provide a Performance Bond. The option of requiring a Performance Bond is to insure that the SBN will be operational according to the SDC's service schedule, technical dependencies and participant interface requirements. Failure to provide operational SBN settlement services according to schedule may expose the SDC to financial loss.

Services provided by institutions qualified and selected as members of the SBN will be governed by a business services contract executed by the SDC and individual institutions as members of the SBN.

In order to qualify an institution's general legal and contractual standards please answer the questions, below.

- (a) Will the SBN Agreement include any provision(s) limiting or excluding any oral or written representation made by the institution in response to or in connection with the Qualification Packet? If the answer to this question is yes, please explain.

- (b) The SDC requires that if an institution qualified and selected does not meet the obligations of the business services contract, the SDC will have the right to cancel the contract. Additionally, under what circumstances and within what time frames can the business services agreement be terminated by the SDC or terminated by the institution?
- (c) If qualified and selected would your institution propose to cover any portion or aspect of the proposed business (s) services outside of the business services contract to be executed.
- (d) In cases where your institution operates under contractual agreements please specify the general business conditions or events that would normally cause “default” .

2.00 Business Requirements

Section 2.00 requests detailed information from an institution regarding the institution’s capacity to support the SDC’s business requirements. In responding to the questions and information requests in this section, an institution will rationalize the manner in which the institution’s products and service delivery mechanisms specifically meet SDC’s business requirements.

The manner in which an institution provides technical assistance to support delivery of its business services is addressed in Section 3.00 where technical responses are required. However, institutions may incorporate technical information in response to questions and information requests in this Section where, in the judgment of the institution, such information will add to the value of the institution’s services and/or will assist the SDC in making an informed evaluation.

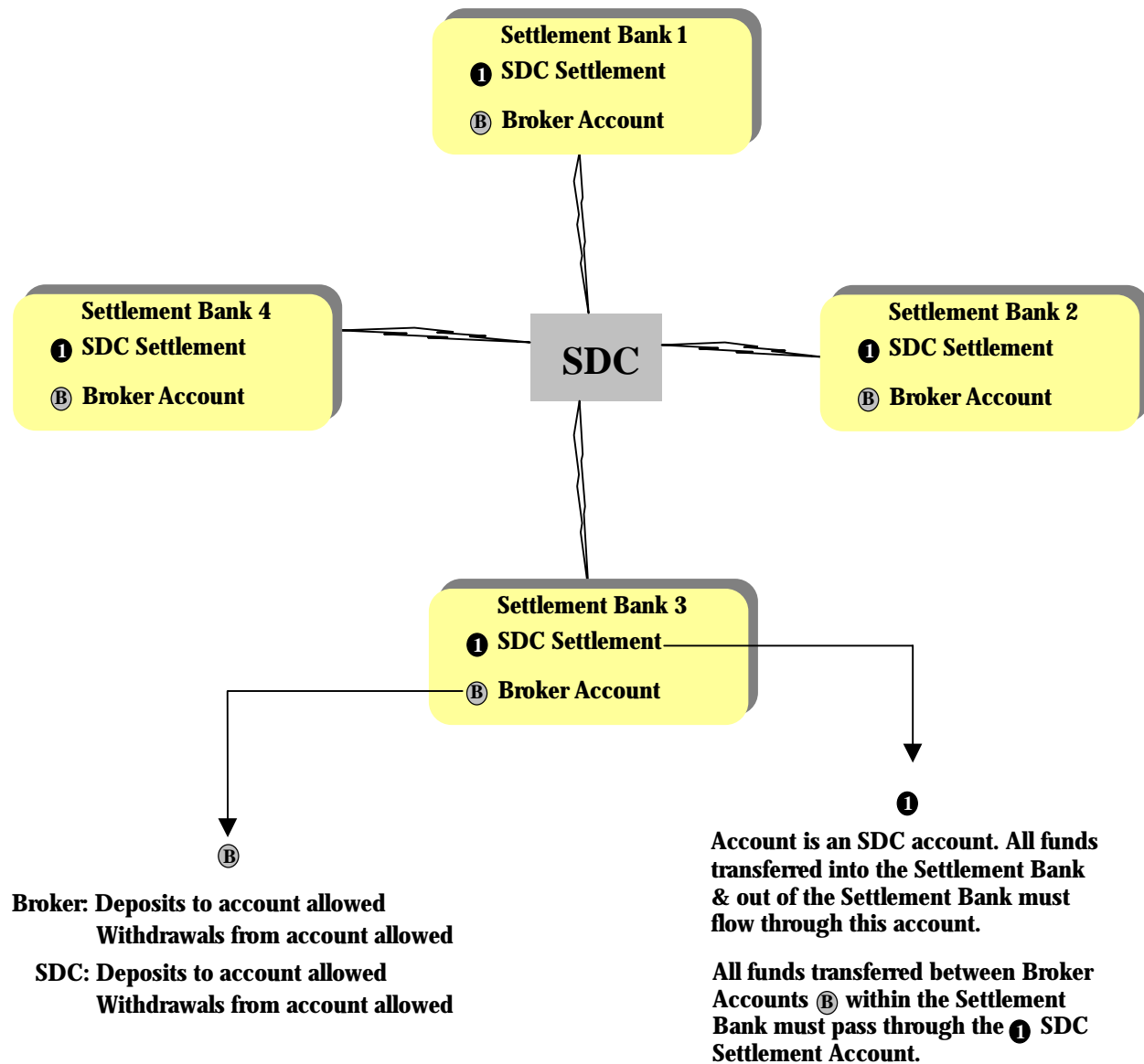
As stated Section 1.00, it is required that institutions respond to all questions and information requests. Responses are required even if the question posed or information requested is not applicable to the business services provided by the institution or the institution does not have the capability of supporting the stated business requirement.

2.01 Settlement Bank Network (SBN)

The SDC will be in charge of conducting cash settlements between brokers, the effectiveness of this is dependent on the rapid movement of funds between the bank accounts of brokers. Additionally, a key requirement in providing settlement services is the ability of a Securities Depository Center (SDC) to monitor and control the movement of funds involved in the settlement process.

On the following page there is a charts illustrating the SBN Chart of Accounts

SBN CHART OF ACCOUNTS



2.02 Cash Settlement - Process

In order to settle the cash side of securities trades it is necessary to receive money from the trade's buyer and pass that money to the trade's seller.

The settlement sequence of events commences on the day a trade is executed on a Stock Exchange or a Stock Market. The date on which a securities trade takes place is commonly referred to as Trade Date or T+0.

Subsequent to the Stock Exchange close, a Central Securities Depository (CSD) will receive an electronic record containing information related to trade executions that have taken place on the Exchange on that specific day. Based on the information received from the Stock Exchange the CSD will determine the total buy and sell obligations and the cash position of each broker. Each broker will be notified by the SDC of the amounts it has to pay or the amounts it will receive by 10:00 AM on trade date plus one business day (T+1).

In the case of Net Buyers, once they have been notified of their obligations it is the responsibility of the Net Buyer to insure that good funds are on deposit and available to the Depository no later than 9:00AM on Trade Date plus three business days (T+3).

Within the settlement deadlines, when good funds are available in the Depository's Settlement Account, it is the responsibility of the Depository to transfer funds due Net Sellers to the Net Sellers' SBN account. In most markets operating under a three day Settlement Cycle the final transfer of funds and securities required to effect final settlement should occur no later than 2:00PM on T+3.

SETTLEMENT CYCLE SCHEDULE¹

T+0	12:00	◀ Trading Session Ends
	2:00 PM	◀ SDC receives trading file from the Exchange
T+1	10:00	◀ Broker is notified by the SDC of the amounts it has to pay or the amounts it will receive
T+2	3:00	◀ Settlement bank is notified of the expected amounts to be deposited at the SDC settlement account
T+3	8:00 AM	◀ Depository Controlled Funds Movement
	2:00 PM	◀ Depository Controlled Funds Movement

¹ Time frames and processes are generic. Funds movement deadlines will be established by the SDC in conjunction with SBN Member institutions.

2.03 Chart of Accounts - Requirements

The orderly functioning of the SBN is largely dependent on the structure of SDC Participant accounts which, in turn, facilitate the speedy movement of settlement funds.

Based on the SDC's requirements for Account Access, please answer the questions below.

SDC Participant Market Accounts

- (1) Can your institution provide SDC Participant Market Accounts where:
 - (a) The account holder is the SDC Participant?
 - (b) The account holder is permitted to deposit funds to the account?
 - (c) The account holder is permitted to withdraw funds from the account?
 - (d) The SDC, under standing instructions and with proper authorization, is allowed to deposit funds to the account?
 - (e) The SDC, under standing instructions and with proper authorization, is allowed to withdraw funds from the account?
 - (f) The SDC, provided its actions are in agreement with standing instructions, does not require permission from the account holder to make deposits or withdrawals?
- (2) Please describe your institution's business, operational and legal requirements to establish and maintain SDC Participant's Market Accounts.
- (3) If there are any actual or perceived impediments to establishing such accounts please provide specific information related to such impediments.
- (4) Based on the information in (1), items (a) through (f) please submit a simple outline of procedures that would be utilized to support the account structure required. It is understood that this outline is for demonstration purposes only and does not commit your institution to any future operational procedures.

SDC Settlement Account

The SDC Settlement Account:

- (1) is required in order to serve as a temporary holding account for funds in transit and as an Audit Control for all settlement fund movements.
- (2) is required to be under the control of authorized personnel.
- (2) may be credited by deposits approved by SDC authorized personnel
- (3) may be debited by withdrawals approved by SDC authorized personnel
- (4) may receive deposit funds originating from SDC Participants.
- (5) is required to have a zero (0) balance at the end of the business day

3.00 Operational Requirements

Section 3.00 contains information related to SDC account access requirements and information requests concerning an institution's capability to meet SBN money transfer deadlines.

3.01 SDC Account Access

The movement of settlement funds in the most efficient and cost effective manner is a critical factor in the orderly operation of a SBN and is critical in managing systemic risk in the capital markets.

In order to effectively monitor SDC Participants' ability to meet their settlement obligations, it is required that authorized SDC personnel have inquiry access to SDC Participants' Accounts.

- (1) Can your institution provide authorized SDC personnel with inquiry access to and funds movement control of the SDC settlement account.
- (2) What hours of access does your institution normally provide account holders?
- (3) What is the means of access, i.e. via institution's private network, Internet, Public Telephone Network?

- (4) The SDC requires inquiry and account movement access from its offices. Can your institution accommodate this remote access?
- (4) Is access to account data provided on a real-time basis?
- (5) If the answer to (4) is No, then what is the approximate time gap between transaction posting to an account and access to information posted?
- (6) What is the estimated delay time in access due to your institution's necessity to activate Disaster Recovery procedures?
- (7) Can your institution provide inquiry access and funds movement control from your Disaster Recovery site?
- (8) Due to the critical nature of maintaining transaction continuity for securities settlement transactions, please provide information on any additional Disaster Recovery Procedures or Disaster Services that would assist the SDC in maintaining settlement services continuity.

3.02 Multi-Currency Accounts

Please state your institution's capability to provide the Chart of Accounts outlined in Section 2.03 with multi-currency capacity. Additionally, based on best information available please state:

- (a) Any existent Currency Controls on the movement of funds into or out of Jordan.
- (b) Any Central Bank filings or licenses required for the movement of funds in (a).
- (c) Any significant financial fees charged for the movement of funds in (a).
- (d) Any Central Bank controls imposed on the movement of non-Dinar funds into a domestic, Dinar-denominated account.
- (e) Any additional reporting requirements for funds movements into or out of a non-Dinar Account.

3.03 Non-Performance Compensation

Please provide a statement regarding your institution's policy on compensating customers due to a lack of performance or failure to perform on the part of your institution. As previously stated, maintaining continuity in the securities settlement process is vital to the stability of capital markets. The maintenance of continuity is extremely important due to the connectivity and interdependence of transactions in the marketplace. A minor disruption, in terms of time, can be very disruptive and financially damaging to participants in the securities markets.

A Depository's failure to provide a broker with funds due in a timely manner will delay the availability of the funds to the broker which in turn will impact its ability to "catch the market" and purchase securities at a desirable price. This is commonly referred to as an "opportunity loss".

In cases where multiple brokers' access to funds is impacted, liquidity pressure arises in the securities marketplace due to a lack of funds available to purchase securities offered.

3.03 Funds Transfer Deadlines

The efficiency and dependability of the SBN is based on the network's ability to move funds between brokers' Accounts, SDC Settlement Accounts and Accounts of brokers due to receive cash according to the requirements of a T+3 Settlement Cycle.

In order to assist the SDC in its qualification process, please state your institution's Fund Transfer Deadlines and/or Money Transfer Schedule as related to the domestic and international movement of funds. In addition to providing this response, please answer the questions, below.

- (1) For the movement of funds between accounts where both accounts are maintained at your institution, what is the average time lapse between receiving funds movement instructions and the actual movement of funds?¹
- (2) For the movement of funds between accounts where the only the debited account is maintained at your institution, what is the average time lapse between receiving funds movement instructions and the actual movement of funds out of your institution?¹ It is understood that this value does not include the posting of the funds to an account that is maintained outside your institution.
- (3) For the movement of funds between accounts where only the credited account is maintained at your institution, what is the average time lapse between receiving funds movement instructions and the credit posting of funds to the account?¹

(4) What is the average time¹ required to move funds:

received at a branch office to be credited to an account at your central office?

received at a branch office to be debited to an account at your central office

(5) In general, what are your institution's current deadlines for the movement of funds:

where both debited and credited accounts are maintained within your institution?

where only the debited, or outgoing funds, account is maintained within your institution?

where only the credited, or incoming funds, account is maintained

within your institution?

(6) On a normal business day what is your institution's capacity to process outgoing fund transfers and incoming funds transfers:

prior to 8:00AM

after 3:00PM

(7) In your institution's Money Transfer Department, or operational equivalent, what are the normal work shifts and shift work hours?

3.04 Operational Support

As previously mentioned, maintaining the continuity of the securities settlement process is vital to the operations of a SBN and the stability of the capital markets. In order to operate at the highest possible levels of efficiency and dependability is required that decisions affecting the movement of funds be made without undue delay.

¹This value may be expressed as a range and is understood to be a reasonable, best-effort estimation.

In light of this situation the SDC requires members of the SBN to provide decision support personnel during the SBN's operating hours. In a situation where funds must be debited and transferred out or must be received in and credited, it is not acceptable that such transactions can not occur due to the unavailability of authorized personnel at the SDC or at a SBN member institution.

Although hours of operation have not been formally established for the SBN, please state your institution's general policy on the availability of authorization personnel:

from 3:00PM to 9:00PM
from 9:00PM to 12:00 Midnight
from 12:00 Midnight to 9:00AM

3.05 Cost

It is requested that your institution supply a standard Fee Schedule currently in use for business Demand Deposit Accounts.

At the Institution Question & Answer Session information will be available relating to estimated account size and activity. It is hoped that this information will prove helpful in assisting your institution in creating a working SBN Fee Schedule.

SGF PARTICIPANT DATA

Broker #	Average Daily Purchases	Average Daily Sales	Total Purchases	Total Sales	Total Sample Trading Obligations	Daily Trading Obligations
4	288,922.06	308,460.71	17,046,401.56	18,199,181.78	35,245,583.34	597,382.77
16	175,699.00	283,589.54	10,366,240.90	16,731,782.59	27,098,023.49	459,288.54
14	186,587.63	203,941.78	11,008,670.39	12,032,564.96	23,041,235.35	390,529.41
19	173,018.79	193,842.54	10,208,108.36	11,436,709.77	21,644,818.13	366,861.33
3	185,885.92	151,258.31	10,967,269.07	8,924,240.24	19,891,509.31	337,144.23
32	156,183.10	133,078.57	9,214,802.77	7,851,635.62	17,066,438.39	289,261.67
26	131,000.06	141,959.63	7,729,003.29	8,375,618.04	16,104,621.33	272,959.69
12	99,437.55	171,977.44	5,866,815.50	10,146,668.77	16,013,484.27	271,414.99
7	129,057.20	126,754.73	7,614,374.93	7,478,529.30	15,092,904.23	255,811.93
31	125,258.47	108,585.72	7,390,249.44	6,406,557.23	13,796,806.67	233,844.19
37	102,511.89	84,792.51	6,048,201.68	5,002,758.28	11,050,959.96	187,304.40
8	98,956.62	84,690.32	5,838,440.37	4,996,728.70	10,835,169.07	183,646.94
38	89,979.13	89,864.07	5,308,768.53	5,301,980.09	10,610,748.62	179,843.20
22	104,759.20	59,516.49	6,180,792.65	3,511,472.71	9,692,265.36	164,275.69
35	87,324.62	64,734.74	5,152,152.62	3,819,349.76	8,971,502.38	152,059.36
10	86,840.63	35,927.37	5,123,597.08	2,119,714.73	7,243,311.81	122,768.00
34	88,100.96	21,614.61	5,197,956.48	1,275,261.81	6,473,218.29	109,715.57
23	30,144.55	66,233.99	1,778,528.54	3,907,805.32	5,686,333.86	96,378.54
29	30,813.63	65,392.15	1,818,003.94	3,858,137.00	5,676,140.94	96,205.78
11	37,722.98	56,958.06	2,225,655.90	3,360,525.81	5,586,181.71	94,681.04
24	44,892.12	43,679.60	2,648,635.13	2,577,096.21	5,225,731.34	88,571.72
21	37,720.40	50,233.36	2,225,503.49	2,963,768.41	5,189,271.90	87,953.76
39	38,663.79	32,892.77	2,281,163.86	1,940,673.23	4,221,837.09	71,556.56
5	46,234.94	18,189.37	2,727,861.26	1,073,172.63	3,801,033.89	64,424.31
25	48,810.14	13,598.23	2,879,798.26	802,295.36	3,682,093.62	62,408.37
6	26,364.06	32,727.27	1,502,751.57	1,865,454.47	3,368,206.04	59,091.33
17	19,204.78	17,878.86	1,133,081.99	1,054,852.88	2,187,934.87	37,083.64
28	9,610.65	17,547.83	567,028.22	1,035,322.08	1,602,350.30	27,158.48
Totals			158,049,857.78	158,049,857.78	316,099,715.56	5,359,625.44

SETTLEMENT GUARANTEE FUND - BROKER MARKET ACTIVITY SAMPLE

Average Value of Purchases made by Broker per Day for Sample Period

Average Value of Purchases made by Broker per Day for Sample Period

Total Value of all Purchases made by Broker for Sample Period

Total Value of all Sales made by Broker for Sample Period

Total Value of all Purchases & Sales made by Broker for Sample Period

Combined Average Value of Purchases & Sales made by Broker per Day for Sample Period

Broker #	Average Daily Purchases	Average Daily Sales	Total Purchases	Total Sales	Total Sample Trading Obligations	Daily Trading Obligations
4	288,922.06	308,460.71	17,046,401.56	18,199,181.78	35,245,583.34	597,382.77
16	175,699.00	283,589.54	10,366,240.90	16,731,782.59	27,098,023.49	459,288.54
14	186,587.63	203,941.78	11,008,670.39	12,032,564.96	23,041,235.35	390,529.41

Totals			158,049,857.78	158,049,857.78	316,099,715.56	5,359,625.44
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Total Value of all Purchases made by all Brokers during Sample Period

Total Value of all Sales made by all Brokers during Sample Period

Total Value of all Purchases & Sales made by all Brokers during Sample Period

Average Value of Purchases & Sales made by all Brokers, per day, for Sample Period

SGF PARTICIPANT WEIGHTS

Broker #	Average Daily Purchases	Average Daily Sales	Total Purchases	Total Sales	Total Sample Trading Obligations	Daily Trading Obligations	Broker's Market Weight
4	288,922.06	308,460.71	17,046,401.56	18,199,181.78	35,245,583.34	597,382.77	11.1501%
16	175,699.00	283,589.54	10,366,240.90	16,731,782.59	27,098,023.49	459,288.54	8.5726%
14	186,587.63	203,941.78	11,008,670.39	12,032,564.96	23,041,235.35	390,529.41	7.2892%
19	173,018.79	193,842.54	10,208,108.36	11,436,709.77	21,644,818.13	366,861.33	6.8475%
3	185,885.92	151,258.31	10,967,269.07	8,924,240.24	19,891,509.31	337,144.23	6.2928%
32	156,183.10	133,078.57	9,214,802.77	7,851,635.62	17,066,438.39	289,261.67	5.3991%
26	131,000.06	141,959.63	7,729,003.29	8,375,618.04	16,104,621.33	272,959.69	5.0948%
12	99,437.55	171,977.44	5,866,815.50	10,146,668.77	16,013,484.27	271,414.99	5.0660%
7	129,057.20	126,754.73	7,614,374.93	7,478,529.30	15,092,904.23	255,811.93	4.7747%
31	125,258.47	108,585.72	7,390,249.44	6,406,557.23	13,796,806.67	233,844.19	4.3647%
37	102,511.89	84,792.51	6,048,201.68	5,002,758.28	11,050,959.96	187,304.40	3.4960%
8	98,956.62	84,690.32	5,838,440.37	4,996,728.70	10,835,169.07	183,646.94	3.4278%
38	89,979.13	89,864.07	5,308,768.53	5,301,980.09	10,610,748.62	179,843.20	3.3568%
22	104,759.20	59,516.49	6,180,792.65	3,511,472.71	9,692,265.36	164,275.69	3.0662%
35	87,324.62	64,734.74	5,152,152.62	3,819,349.76	8,971,502.38	152,059.36	2.8382%
10	86,840.63	35,927.37	5,123,597.08	2,119,714.73	7,243,311.81	122,768.00	2.2915%
34	88,100.96	21,614.61	5,197,956.48	1,275,261.81	6,473,218.29	109,715.57	2.0478%
23	30,144.55	66,233.99	1,778,528.54	3,907,805.32	5,686,333.86	96,378.54	1.7989%
29	30,813.63	65,392.15	1,818,003.94	3,858,137.00	5,676,140.94	96,205.78	1.7957%
11	37,722.98	56,958.06	2,225,655.90	3,360,525.81	5,586,181.71	94,681.04	1.7672%
24	44,892.12	43,679.60	2,648,635.13	2,577,096.21	5,225,731.34	88,571.72	1.6532%
21	37,720.40	50,233.36	2,225,503.49	2,963,768.41	5,189,271.90	87,953.76	1.6417%
39	38,663.79	32,892.77	2,281,163.86	1,940,673.23	4,221,837.09	71,556.56	1.3356%
5	46,234.94	18,189.37	2,727,861.26	1,073,172.63	3,801,033.89	64,424.31	1.2025%
25	48,810.14	13,598.23	2,879,798.26	802,295.36	3,682,093.62	62,408.37	1.1649%
6	26,364.06	32,727.27	1,502,751.57	1,865,454.47	3,368,206.04	59,091.33	1.0656%
17	19,204.78	17,878.86	1,133,081.99	1,054,852.88	2,187,934.87	37,083.64	0.6922%
28	9,610.65	17,547.83	567,028.22	1,035,322.08	1,602,350.30	27,158.48	0.5069%
Totals			158,049,857.78	158,049,857.78	316,099,715.56	5,359,625.44	1.0000

SETTLEMENT GUARANTEE FUND - BROKER CONTRIBUTION CALCULATION

Total Value of all Purchases made by Broker for Sample Period ①

Total Value of all Sales made by Broker for Sample Period ②

Total Value of all Purchases & Sales made by Broker for Sample Period ③

Broker's Total Trading Activity (Broker's Purchases & Sales) as a percentage of Sample's Total Trading Activity (Total Purchases & Sales) ⑤

Broker #	Average Daily Purchases	Average Daily Sales	Total Purchases	Total Sales	Total Sample Trading Obligations	Daily Trading Obligations	Broker's Market Weight
4	288,922.06	308,460.71	17,046,401.56	18,199,181.78	35,245,583.34	597,382.77	11.1501%
16	175,699.00	283,589.54	10,366,240.90	16,731,782.59	27,098,023.49	459,288.54	8.5726%
14	186,587.63	203,941.78	11,008,670.39	12,032,564.96	23,041,235.35	390,529.41	7.2892%

Totals			158,049,857.78	158,049,857.78	316,099,715.56	5,359,625.44	1.0000
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Total Value of all Purchases & Sales made by all Brokers during Sample Period ④

Broker Market Weight - Sample Calculation

Broker # 4

$$\textcircled{1} 17,046,401.56 + \textcircled{2} 18,199,181.78 = \textcircled{3} 35,245,583.34$$

$$\frac{\textcircled{3} 35,245,583.34}{\textcircled{4} 316,099,715.56} = \textcircled{5} 11.1501\%$$

In determining each Broker's Contribution to the Settlement Guarantee Fund, efforts are made to have each Broker contribute according to the Broker's level of transaction activity in the Securities Market. Active Brokers with a high percentage of the market's transaction activity should contribute more than less active Brokers with low levels of transaction activity.

SETTLEMENT GUARANTEE FUND - CONTRIBUTION MODELS

MODEL A (High Model)

The Settlement Guarantee Fund contains an amount of readily available funds and/or liquid collateral equal to the combined value of the Depository's three (3) most active participants' average daily obligations for a period of 5 business days (T+5).

Each depository participant should contribute to the SGF an amount that is directly proportionate to the depository participant's share of the depository's overall average daily transaction value.

MODEL B (Medium Model)

The Settlement Guarantee Fund contains an amount of readily available funds and/or liquid collateral equal to the combined value of the Depository's three (3) most active participants' average daily obligations for a period of 4 business days (T+3 plus 1).

Each depository participant should contribute to the SGF an amount that is directly proportionate to the depository participant's share of the depository's overall average daily transaction value.

MODEL C (Low Model)

The Settlement Guarantee Fund contains an amount of readily available funds and/or liquid collateral equal to the combined value of the Depository's three (3) most active participants' average daily obligations for a period of 3 business days (T+3).

Each depository participant should contribute to the SGF an amount that is directly proportionate to the depository participant's share of the depository's overall average daily transaction value.

MODEL D (At-Risk Model)

The Settlement Guarantee Fund contains an amount of readily available funds and/or liquid collateral equal to the combined value of the Depository's 18 least active participants' average daily obligations for a period of 3 business days (T+3).

Each depository participant should contribute to the SGF an amount that is directly proportionate to the depository participant's share of the depository's overall average daily transaction value.

SGF PARTICIPANT CONTRIBUTIONS - MODEL A

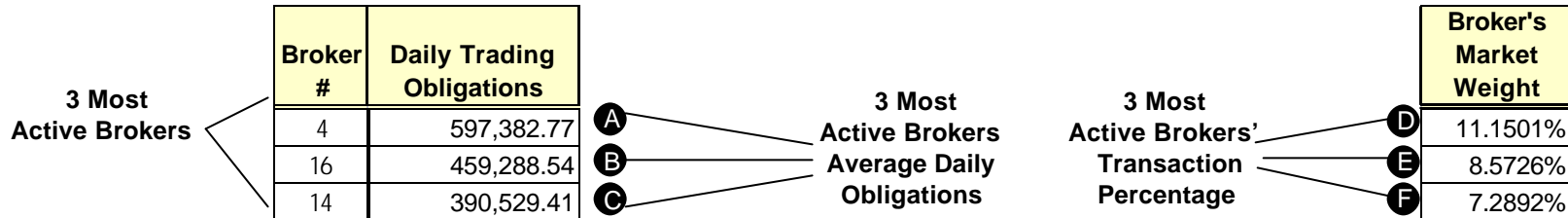
Broker #	Average Daily Purchases	Average Daily Sales	Total Purchases	Total Sales	Total Sample Trading Obligations	Daily Trading Obligations	Broker's Market Weight	Broker's Contribution Model A
4	288,922.06	308,460.71	17,046,401.56	18,199,181.78	35,245,583.34	597,382.77	11.1501%	806,825.05
16	175,699.00	283,589.54	10,366,240.90	16,731,782.59	27,098,023.49	459,288.54	8.5726%	620,315.00
14	186,587.63	203,941.78	11,008,670.39	12,032,564.96	23,041,235.35	390,529.41	7.2892%	527,448.95
19	173,018.79	193,842.54	10,208,108.36	11,436,709.77	21,644,818.13	366,861.33	6.8475%	495,482.83
3	185,885.92	151,258.31	10,967,269.07	8,924,240.24	19,891,509.31	337,144.23	6.2928%	455,346.92
32	156,183.10	133,078.57	9,214,802.77	7,851,635.62	17,066,438.39	289,261.67	5.3991%	390,676.75
26	131,000.06	141,959.63	7,729,003.29	8,375,618.04	16,104,621.33	272,959.69	5.0948%	368,659.29
12	99,437.55	171,977.44	5,866,815.50	10,146,668.77	16,013,484.27	271,414.99	5.0660%	366,573.03
7	129,057.20	126,754.73	7,614,374.93	7,478,529.30	15,092,904.23	255,811.93	4.7747%	345,499.55
31	125,258.47	108,585.72	7,390,249.44	6,406,557.23	13,796,806.67	233,844.19	4.3647%	315,829.90
37	102,511.89	84,792.51	6,048,201.68	5,002,758.28	11,050,959.96	187,304.40	3.4960%	252,973.29
8	98,956.62	84,690.32	5,838,440.37	4,996,728.70	10,835,169.07	183,646.94	3.4278%	248,033.51
38	89,979.13	89,864.07	5,308,768.53	5,301,980.09	10,610,748.62	179,843.20	3.3568%	242,896.19
22	104,759.20	59,516.49	6,180,792.65	3,511,472.71	9,692,265.36	164,275.69	3.0662%	221,870.71
35	87,324.62	64,734.74	5,152,152.62	3,819,349.76	8,971,502.38	152,059.36	2.8382%	205,371.34
10	86,840.63	35,927.37	5,123,597.08	2,119,714.73	7,243,311.81	122,768.00	2.2915%	165,810.43
34	88,100.96	21,614.61	5,197,956.48	1,275,261.81	6,473,218.29	109,715.57	2.0478%	148,181.82
23	30,144.55	66,233.99	1,778,528.54	3,907,805.32	5,686,333.86	96,378.54	1.7989%	130,168.84
29	30,813.63	65,392.15	1,818,003.94	3,858,137.00	5,676,140.94	96,205.78	1.7957%	129,935.51
11	37,722.98	56,958.06	2,225,655.90	3,360,525.81	5,586,181.71	94,681.04	1.7672%	127,876.20
24	44,892.12	43,679.60	2,648,635.13	2,577,096.21	5,225,731.34	88,571.72	1.6532%	119,624.94
21	37,720.40	50,233.36	2,225,503.49	2,963,768.41	5,189,271.90	87,953.76	1.6417%	118,790.33
39	38,663.79	32,892.77	2,281,163.86	1,940,673.23	4,221,837.09	71,556.56	1.3356%	96,644.28
5	46,234.94	18,189.37	2,727,861.26	1,073,172.63	3,801,033.89	64,424.31	1.2025%	87,011.45
25	48,810.14	13,598.23	2,879,798.26	802,295.36	3,682,093.62	62,408.37	1.1649%	84,288.73
6	26,364.06	32,727.27	1,502,751.57	1,865,454.47	3,368,206.04	59,091.33	1.0656%	77,103.36
17	19,204.78	17,878.86	1,133,081.99	1,054,852.88	2,187,934.87	37,083.64	0.6922%	50,085.16
28	9,610.65	17,547.83	567,028.22	1,035,322.08	1,602,350.30	27,158.48	0.5069%	36,680.24
Totals			158,049,857.78	158,049,857.78	316,099,715.56	5,359,625.44	1.0000	7,236,003.60

SGF PARTICIPANT CONTRIBUTIONS - MODEL B

Broker #	Average Daily Purchases	Average Daily Sales	Total Purchases	Total Sales	Total Sample Trading Obligations	Daily Trading Obligations	Broker's Market Weight	Broker's Contribution Model B
4	288,922.06	308,460.71	17,046,401.56	18,199,181.78	35,245,583.34	597,382.77	11.1501%	645,460.04
16	175,699.00	283,589.54	10,366,240.90	16,731,782.59	27,098,023.49	459,288.54	8.5726%	496,252.00
14	186,587.63	203,941.78	11,008,670.39	12,032,564.96	23,041,235.35	390,529.41	7.2892%	421,959.16
19	173,018.79	193,842.54	10,208,108.36	11,436,709.77	21,644,818.13	366,861.33	6.8475%	396,386.26
3	185,885.92	151,258.31	10,967,269.07	8,924,240.24	19,891,509.31	337,144.23	6.2928%	364,277.54
32	156,183.10	133,078.57	9,214,802.77	7,851,635.62	17,066,438.39	289,261.67	5.3991%	312,541.40
26	131,000.06	141,959.63	7,729,003.29	8,375,618.04	16,104,621.33	272,959.69	5.0948%	294,927.44
12	99,437.55	171,977.44	5,866,815.50	10,146,668.77	16,013,484.27	271,414.99	5.0660%	293,258.42
7	129,057.20	126,754.73	7,614,374.93	7,478,529.30	15,092,904.23	255,811.93	4.7747%	276,399.64
31	125,258.47	108,585.72	7,390,249.44	6,406,557.23	13,796,806.67	233,844.19	4.3647%	252,663.92
37	102,511.89	84,792.51	6,048,201.68	5,002,758.28	11,050,959.96	187,304.40	3.4960%	202,378.63
8	98,956.62	84,690.32	5,838,440.37	4,996,728.70	10,835,169.07	183,646.94	3.4278%	198,426.81
38	89,979.13	89,864.07	5,308,768.53	5,301,980.09	10,610,748.62	179,843.20	3.3568%	194,316.95
22	104,759.20	59,516.49	6,180,792.65	3,511,472.71	9,692,265.36	164,275.69	3.0662%	177,496.56
35	87,324.62	64,734.74	5,152,152.62	3,819,349.76	8,971,502.38	152,059.36	2.8382%	164,297.08
10	86,840.63	35,927.37	5,123,597.08	2,119,714.73	7,243,311.81	122,768.00	2.2915%	132,648.35
34	88,100.96	21,614.61	5,197,956.48	1,275,261.81	6,473,218.29	109,715.57	2.0478%	118,545.46
23	30,144.55	66,233.99	1,778,528.54	3,907,805.32	5,686,333.86	96,378.54	1.7989%	104,135.07
29	30,813.63	65,392.15	1,818,003.94	3,858,137.00	5,676,140.94	96,205.78	1.7957%	103,948.40
11	37,722.98	56,958.06	2,225,655.90	3,360,525.81	5,586,181.71	94,681.04	1.7672%	102,300.96
24	44,892.12	43,679.60	2,648,635.13	2,577,096.21	5,225,731.34	88,571.72	1.6532%	95,699.96
21	37,720.40	50,233.36	2,225,503.49	2,963,768.41	5,189,271.90	87,953.76	1.6417%	95,032.27
39	38,663.79	32,892.77	2,281,163.86	1,940,673.23	4,221,837.09	71,556.56	1.3356%	77,315.42
5	46,234.94	18,189.37	2,727,861.26	1,073,172.63	3,801,033.89	64,424.31	1.2025%	69,609.16
25	48,810.14	13,598.23	2,879,798.26	802,295.36	3,682,093.62	62,408.37	1.1649%	67,430.98
6	26,364.06	32,727.27	1,502,751.57	1,865,454.47	3,368,206.04	59,091.33	1.0656%	61,682.69
17	19,204.78	17,878.86	1,133,081.99	1,054,852.88	2,187,934.87	37,083.64	0.6922%	40,068.13
28	9,610.65	17,547.83	567,028.22	1,035,322.08	1,602,350.30	27,158.48	0.5069%	29,344.19
Totals			158,049,857.78	158,049,857.78	316,099,715.56	5,359,625.44	1.0000	5,788,802.88

SETTLEMENT GUARANTEE FUND - SAMPLE CONTRIBUTION CALCULATION

Brokers #4, #16 & #14 Contributions to Model B



Broker Contribution - Sample Calculations

Broker # 4 - Model B

$$(\text{A} + \text{B} + \text{C}) \times 4 \text{ Business Days} \times \text{D} = 645,460.04$$

SGF Contribution required for Broker # 4 using Model B

Broker # 16 - Model B

$$(\text{A} + \text{B} + \text{C}) \times 4 \text{ Business Days} \times \text{E} = 496,252.00$$

SGF Contribution required for Broker # 16 using Model B

Broker # 14 - Model B

$$(\text{A} + \text{B} + \text{C}) \times 4 \text{ Business Days} \times \text{F} = 421,959.16$$

SGF Contribution required for Broker # 14 using Model B

SGF PARTICIPANT CONTRIBUTIONS - MODEL C

Broker #	Average Daily Purchases	Average Daily Sales	Total Purchases	Total Sales	Total Sample Trading Obligations	Daily Trading Obligations	Broker's Market Weight	Broker's Contribution Model D
4	288,922.06	308,460.71	17,046,401.56	18,199,181.78	35,245,583.34	597,382.77	11.1501%	589,102.03
16	175,699.00	283,589.54	10,366,240.90	16,731,782.59	27,098,023.49	459,288.54	8.5726%	364,258.26
14	186,587.63	203,941.78	11,008,670.39	12,032,564.96	23,041,235.35	390,529.41	7.2892%	276,039.77
19	173,018.79	193,842.54	10,208,108.36	11,436,709.77	21,644,818.13	366,861.33	6.8475%	241,032.68
3	185,885.92	151,258.31	10,967,269.07	8,924,240.24	19,891,509.31	337,144.23	6.2928%	197,092.22
32	156,183.10	133,078.57	9,214,802.77	7,851,635.62	17,066,438.39	289,261.67	5.3991%	151,773.57
26	131,000.06	141,959.63	7,729,003.29	8,375,618.04	16,104,621.33	272,959.69	5.0948%	138,673.77
12	99,437.55	171,977.44	5,866,815.50	10,146,668.77	16,013,484.27	271,414.99	5.0660%	133,545.52
7	129,057.20	126,754.73	7,614,374.93	7,478,529.30	15,092,904.23	255,811.93	4.7747%	116,898.76
31	125,258.47	108,585.72	7,390,249.44	6,406,557.23	13,796,806.67	233,844.19	4.3647%	91,909.38
37	102,511.89	84,792.51	6,048,201.68	5,002,758.28	11,050,959.96	187,304.40	3.4960%	64,842.96
8	98,956.62	84,690.32	5,838,440.37	4,996,728.70	10,835,169.07	183,646.94	3.4278%	62,298.02
38	89,979.13	89,864.07	5,308,768.53	5,301,980.09	10,610,748.62	179,843.20	3.3568%	57,756.44
22	104,759.20	59,516.49	6,180,792.65	3,511,472.71	9,692,265.36	164,275.69	3.0662%	48,497.41
35	87,324.62	64,734.74	5,152,152.62	3,819,349.76	8,971,502.38	152,059.36	2.8382%	39,000.58
10	86,840.63	35,927.37	5,123,597.08	2,119,714.73	7,243,311.81	122,768.00	2.2915%	26,636.39
34	88,100.96	21,614.61	5,197,956.48	1,275,261.81	6,473,218.29	109,715.57	2.0478%	21,102.39
23	30,144.55	66,233.99	1,778,528.54	3,907,805.32	5,686,333.86	96,378.54	1.7989%	17,322.05
29	30,813.63	65,392.15	1,818,003.94	3,858,137.00	5,676,140.94	96,205.78	1.7957%	17,138.59
11	37,722.98	56,958.06	2,225,655.90	3,360,525.81	5,586,181.71	94,681.04	1.7672%	16,192.41
24	44,892.12	43,679.60	2,648,635.13	2,577,096.21	5,225,731.34	88,571.72	1.6532%	14,591.51
21	37,720.40	50,233.36	2,225,503.49	2,963,768.41	5,189,271.90	87,953.76	1.6417%	13,093.06
39	38,663.79	32,892.77	2,281,163.86	1,940,673.23	4,221,837.09	71,556.56	1.3356%	9,080.82
5	46,234.94	18,189.37	2,727,861.26	1,073,172.63	3,801,033.89	64,424.31	1.2025%	7,625.68
25	48,810.14	13,598.23	2,879,798.26	802,295.36	3,682,093.62	62,408.37	1.1649%	7,076.46
6	26,364.06	32,727.27	1,502,751.57	1,865,454.47	3,368,206.04	59,091.33	1.0656%	5,123.97
17	19,204.78	17,878.86	1,133,081.99	1,054,852.88	2,187,934.87	37,083.64	0.6922%	2,223.31
28	9,610.65	17,547.83	567,028.22	1,035,322.08	1,602,350.30	27,158.48	0.5069%	688.35
Totals			158,049,857.78	158,049,857.78	316,099,715.56	5,359,625.44	1.0000	2,730,616.35

SGF PARTICIPANT CONTRIBUTIONS - MODEL D

Broker #	Average Daily Purchases	Average Daily Sales	Total Purchases	Total Sales	Total Sample Trading Obligations	Daily Trading Obligations	Broker's Market Weight	Broker's Contribution At Risk Model
4	288,922.06	308,460.71	17,046,401.56	18,199,181.78	35,245,583.34	597,382.77	11.1501%	645,460.04
16	175,699.00	283,589.54	10,366,240.90	16,731,782.59	27,098,023.49	459,288.54	8.5726%	496,252.00
14	186,587.63	203,941.78	11,008,670.39	12,032,564.96	23,041,235.35	390,529.41	7.2892%	421,959.16
19	173,018.79	193,842.54	10,208,108.36	11,436,709.77	21,644,818.13	366,861.33	6.8475%	396,386.26
3	185,885.92	151,258.31	10,967,269.07	8,924,240.24	19,891,509.31	337,144.23	6.2928%	364,277.54
32	156,183.10	133,078.57	9,214,802.77	7,851,635.62	17,066,438.39	289,261.67	5.3991%	312,541.40
26	131,000.06	141,959.63	7,729,003.29	8,375,618.04	16,104,621.33	272,959.69	5.0948%	294,927.44
12	99,437.55	171,977.44	5,866,815.50	10,146,668.77	16,013,484.27	271,414.99	5.0660%	293,258.42
7	129,057.20	126,754.73	7,614,374.93	7,478,529.30	15,092,904.23	255,811.93	4.7747%	450,073.69
31	125,258.47	108,585.72	7,390,249.44	6,406,557.23	13,796,806.67	233,844.19	4.3647%	411,423.78
37	102,511.89	84,792.51	6,048,201.68	5,002,758.28	11,050,959.96	187,304.40	3.4960%	329,542.03
8	98,956.62	84,690.32	5,838,440.37	4,996,728.70	10,835,169.07	183,646.94	3.4278%	323,107.10
38	89,979.13	89,864.07	5,308,768.53	5,301,980.09	10,610,748.62	179,843.20	3.3568%	316,414.83
22	104,759.20	59,516.49	6,180,792.65	3,511,472.71	9,692,265.36	164,275.69	3.0662%	289,025.46
35	87,324.62	64,734.74	5,152,152.62	3,819,349.76	8,971,502.38	152,059.36	2.8382%	267,532.15
10	86,840.63	35,927.37	5,123,597.08	2,119,714.73	7,243,311.81	122,768.00	2.2915%	215,997.14
34	88,100.96	21,614.61	5,197,956.48	1,275,261.81	6,473,218.29	109,715.57	2.0478%	193,032.78
23	30,144.55	66,233.99	1,778,528.54	3,907,805.32	5,686,333.86	96,378.54	1.7989%	169,567.71
29	30,813.63	65,392.15	1,818,003.94	3,858,137.00	5,676,140.94	96,205.78	1.7957%	169,263.76
11	37,722.98	56,958.06	2,225,655.90	3,360,525.81	5,586,181.71	94,681.04	1.7672%	166,581.16
24	44,892.12	43,679.60	2,648,635.13	2,577,096.21	5,225,731.34	88,571.72	1.6532%	155,832.45
21	37,720.40	50,233.36	2,225,503.49	2,963,768.41	5,189,271.90	87,953.76	1.6417%	154,745.22
39	38,663.79	32,892.77	2,281,163.86	1,940,673.23	4,221,837.09	71,556.56	1.3356%	125,896.10
5	46,234.94	18,189.37	2,727,861.26	1,073,172.63	3,801,033.89	64,424.31	1.2025%	113,347.66
25	48,810.14	13,598.23	2,879,798.26	802,295.36	3,682,093.62	62,408.37	1.1649%	109,800.83
6	26,364.06	32,727.27	1,502,751.57	1,865,454.47	3,368,206.04	59,091.33	1.0656%	100,440.64
17	19,204.78	17,878.86	1,133,081.99	1,054,852.88	2,187,934.87	37,083.64	0.6922%	65,244.69
28	9,610.65	17,547.83	567,028.22	1,035,322.08	1,602,350.30	27,158.48	0.5069%	47,782.43
Totals			158,049,857.78	158,049,857.78	316,099,715.56	5,359,625.44	1.0000	7,399,713.88

SGF PARTICIPANT CONTRIBUTIONS - TIGHTLY COUPLED MODEL

Broker #	Average Daily Purchases	Total Purchases	Broker's Market Weight	SGD Funding	Broker's Contribution Model A
4	288,922.06	17,046,401.56	10.79%	651,208.69	70,235.84
16	175,699.00	10,366,240.90	6.56%	651,208.69	42,711.75
14	186,587.63	11,008,670.39	6.97%	651,208.69	45,358.74
19	173,018.79	10,208,108.36	6.46%	651,208.69	42,060.20
3	185,885.92	10,967,269.07	6.94%	651,208.69	45,188.15
32	156,183.10	9,214,802.77	5.83%	651,208.69	37,967.51
26	131,000.06	7,729,003.29	4.89%	651,208.69	31,845.61
12	99,437.55	5,866,815.50	3.71%	651,208.69	24,172.89
7	129,057.20	7,614,374.93	4.82%	651,208.69	31,373.31
31	125,258.47	7,390,249.44	4.68%	651,208.69	30,449.85
37	102,511.89	6,048,201.68	3.83%	651,208.69	24,920.25
8	98,956.62	5,838,440.37	3.69%	651,208.69	24,055.97
38	89,979.13	5,308,768.53	3.36%	651,208.69	21,873.58
22	104,759.20	6,180,792.65	3.91%	651,208.69	25,466.56
35	87,324.62	5,152,152.62	3.26%	651,208.69	21,228.28
10	86,840.63	5,123,597.08	3.24%	651,208.69	21,110.62
34	88,100.96	5,197,956.48	3.29%	651,208.69	21,417.00
23	30,144.55	1,778,528.54	1.13%	651,208.69	7,328.02
29	30,813.63	1,818,003.94	1.15%	651,208.69	7,490.67
11	37,722.98	2,225,655.90	1.41%	651,208.69	9,170.31
24	44,892.12	2,648,635.13	1.68%	651,208.69	10,913.10
21	37,720.40	2,225,503.49	1.41%	651,208.69	9,169.68
39	38,663.79	2,281,163.86	1.44%	651,208.69	9,399.02
5	46,234.94	2,727,861.26	1.73%	651,208.69	11,239.54
25	48,810.14	2,879,798.26	1.82%	651,208.69	11,865.56
6	26,364.06	1,502,751.57	0.95%	651,208.69	6,191.75
17	19,204.78	1,133,081.99	0.72%	651,208.69	4,668.61
28	9,610.65	567,028.22	0.36%	651,208.69	2,336.31
Totals		158,049,857.78	100.00%		651,208.69